

What is claimed is:

1. A battery, comprising:
  - a battery case;
  - an electrode assembly disposed within the battery case, said electrode assembly including at least a first electrode tab and a second electrode tab;
  - a battery cover coupled to the battery case;
  - a headspace insulator having a receiving area; and
  - a feedthrough assembly, said feedthrough assembly further comprising:
    - a ferrule, a feedthrough pin, and an insulating member, wherein said feedthrough pin having a distal end locked into the receiving area and coupled to the second electrode tab.
2. A battery according to claim 1, further comprising a weld bracket coupled to the battery cover, the weld bracket coupled to the first electrode tab.
3. A battery according to claim 1, wherein the headspace insulator couples to the battery cover near a slot in the headspace insulator, said slot disposed adjacent the weld bracket.
4. A battery according to claim 1, further comprising a first electrode opening to accept the first electrode tab, and a second electrode opening to accept the second electrode tab.
5. A battery according to claim 1, further comprising a case liner disposed around at least a portion of the electrode assembly.
6. A battery according to claim 1, further comprising:
  - a coil insulator having slits; and a case liner enclosing the electrode assembly with a portion of the first electrode tab and a portion of the second electrode tab extending through the slits.

7. A battery according to claim 3, wherein the headspace insulator further comprises a substantially solid, generally parallelepiped shaped unit.
8. A battery according to claim 7, wherein the headspace insulator further comprises a raised portion adapted to couple to the battery cover.
9. A battery according to claim 8, wherein the headspace insulator further comprises a feedthrough aperture adapted to receive the feedthrough assembly.
10. A battery according to claim 9, wherein the headspace insulator further comprises a pin aperture adapted to receive the feedthrough pin.
11. A battery according to claim 10, wherein the pin aperture further comprises a curved portion, said curved portion adapted to support the feedthrough pin.
12. A battery according to claim 1, wherein the receiving area holds the distal end still during mechanical shock to the battery.
13. A battery according to claim 9, wherein the headspace insulator isolates the feedthrough pin.
14. A battery according to claim 12, wherein the receiving area further comprises indentations that lock the distal end into the receiving area.
15. A battery according to claim 13, wherein the headspace insulator further comprises a fillport means for admitting electrolyte into the electrode assembly.
16. A battery according to claim 3, wherein the slot isolates the weld bracket from the feedthrough pin and the second electrode tab.

17. A headspace insulator for a battery in an implantable medical device, comprising:

    a body of electrically and thermally insulating material disposed between a battery electrode assembly and a battery cover;

    a receiving area within the body that receives and isolates a battery feedthrough pin; and

    an indentation within the receiving area that retains the battery feedthrough pin once the feedthrough pin is disposed within the receiving area.

18. A headspace insulator according to claim 17, wherein the headspace insulator further comprises a raised portion that couples to a battery cover and provides an air gap between the cover and the headspace insulator near a battery case to battery cover weld areas.

19. A headspace insulator according to claim 17, wherein the headspace insulator further comprises a feedthrough aperture that receives a battery feedthrough assembly.

20. A headspace insulator according to claim 17, wherein the headspace insulator further comprises a pin aperture that receives the feedthrough pin.

21. A headspace insulator according to claim 17, wherein the pin aperture further comprises a curvature that provides support for the feedthrough pin.

22. A headspace insulator according to claim 17, wherein the receiving area restrains motion of the feedthrough pin in the event of abrupt motion of the battery.

23. A headspace insulator according to claim 17, wherein the headspace insulator further comprises a fillport feature adapted to allow a fluidic electrolyte to flow through a portion of the headspace insulator and into the electrode assembly.

24. A headspace insulator according to claim 17, wherein the headspace insulator further comprises a slot that locates a battery weld bracket and isolates it from the feedthrough pin.

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25. A method of manufacturing a battery for an implantable medical device, comprising:

placing a case liner and a coil insulator over an electrode assembly;

coupling a weld bracket to a battery cover;

coupling a headspace insulator to the battery cover;

bending the feedthrough pin;

locking a distal end of the feedthrough pin into a receiving area in the headspace insulator;

aligning the headspace insulator with the electrode assembly so a second electrode tab on the electrode assembly is accepted within a second electrode opening in the headspace insulator and a first electrode tab on the electrode assembly is accepted within a first electrode opening in the headspace insulator;

coupling the second electrode tab and the distal end of the feedthrough pin;

coupling the first electrode tab and the weld bracket;

placing the electrode assembly within the battery case; and

coupling the battery cover to the battery case.

26. A method according to claim 25, further comprising the step of filling the battery case with an electrolyte through a fill port.

27. A method according to claim 26, further comprising the step of sealing the battery case with a closing ball and button.

28. A method according to claim 25, wherein the coil insulator is comprised of slits to receive the first electrode tab and the second electrode tab.